

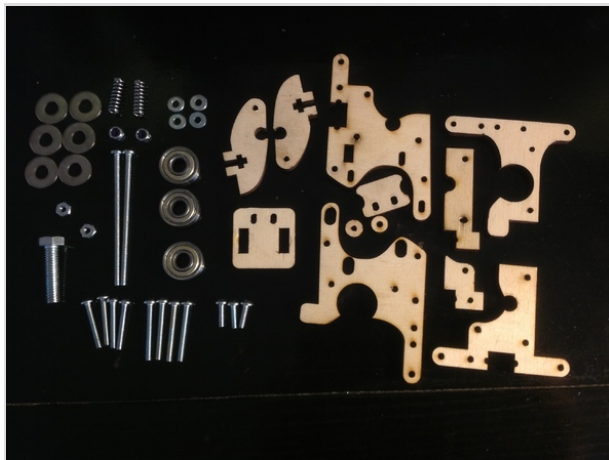


How to Assemble the Beta-Version Wooden Extruder

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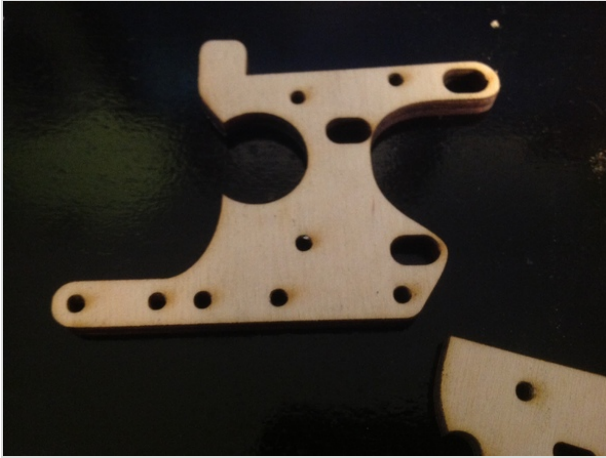
Parts relevant to this guide

- [Lock Nuts](#) (2)
- [Nuts](#) (2)
- [Screws](#) (4)
- [Screws](#) (3)
- [Screws](#) (2)
- [Bolt](#) (1)
- [Springs](#) (2)
- [Washers](#) (6) *or 2 x bushings*
- [Washers](#) (4)
- [Bearings](#) (3)



Step 1 — How to Assemble the Beta-Version Wooden Extruder

- First, make sure you have all of your parts.
- See Introduction for list of materials.



Step 2

- Stack the parts in order.
- The next few steps will walk you through this process.



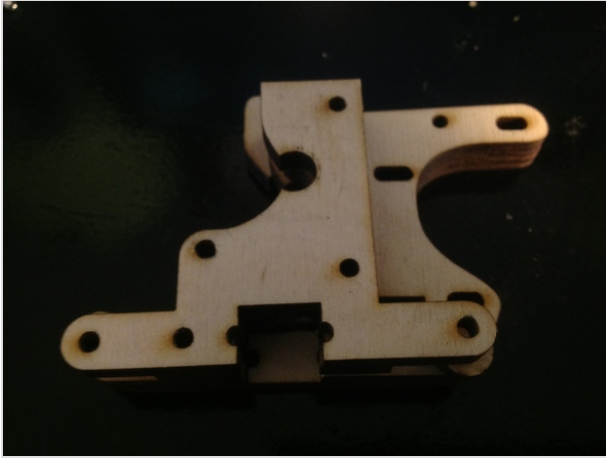
Step 3

- Stacking.



Step 4

- Half way there.
- Note you have four laser cut pieces on this layer.



Step 5

- Nearly there.



Step 6

- Phew done.



Step 7

- Next use some narrow long implement to line up the holes through each layer.
- Here I used two finishing nails I had laying around.
- These two holes will receive the first 2 screws. Use the 1" long ones here. It's important to use the correct length. In the second picture I circled these screws in blue.
- The third screw should be 1 1/4". Circled in red in the second picture.
- At this point the two 1" screws are too short to really grab the back layer, so just set it aside for now.
- The third picture shows where I stopped the screws so they were flush with the second to last layer. Do not screw them all the way in. This will make the next step easier.



Step 8

- Now we can attach the last layer with a 1/2 6x32 screw.



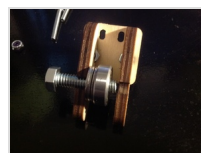
Step 9

- Now flip the extruder over and tighten down the three screws installed earlier.
- Then grab two more 1 1/4" screws and tie together the two corners of the base.
 - Careful with the little circle laser cut parts. They are tricky. They probably fell out when flipping the part around. You will have to hold these little pieces to keep them from spinning in place.



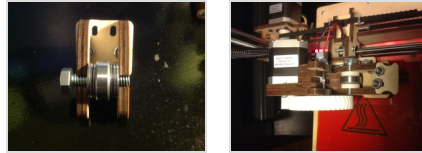
Step 10

- Now for the back half.
- If you have assembled any of the Printrbot LC models then this connection should be old hat. Just insert the tabs and slide the hex nuts in to the traps. Use two 1/2" screws and 1/8" washers.
 - The trick here is to slide the nuts as close to the center as you can. This is to get them out of the way of the large gear once assembled.



Step 11

- Now screw in the quarter inch bolt to the right side as shown in the picture.
 - Leave a little more room than the width of the bearing.
- Slide 3- 1/4 inch washers or one bushing on the bolt and then your bearing.
- Tighten the bolt down a bit more and slide either three washers or one bushing.
- Then tighten the bolt down until the end is flush with the side.



Step 12

- Do not over tighten the bolt, you want it to be flush with the side as shown in the first picture.
- The second picture is of the bearing installed with two plastic bushings.
- Second picture also demonstrates the importance of not over tightening the bolt.



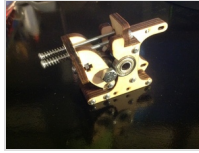
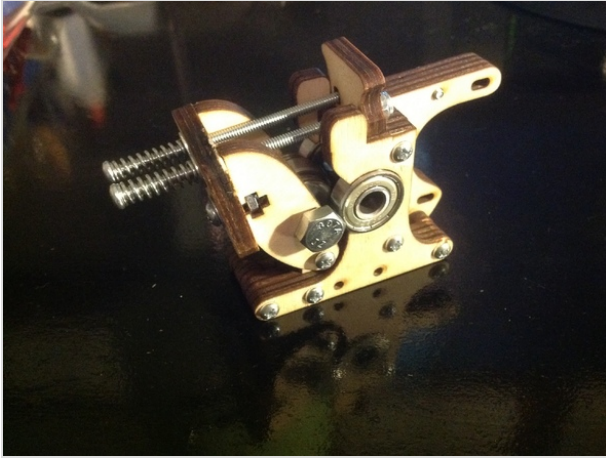
Step 13

- Now mate the two parts together with a 1 1/4" screw.
- Do not over tighten, you want the end of the screw to be flush with the side of the extruder. This is so it does not come into contact with the large gear when fully assembled.



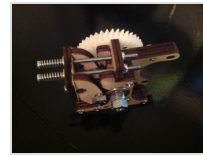
Step 14

- Now take your 3 inch 6x32 screws and slide the springs and a washer as shown in the picture



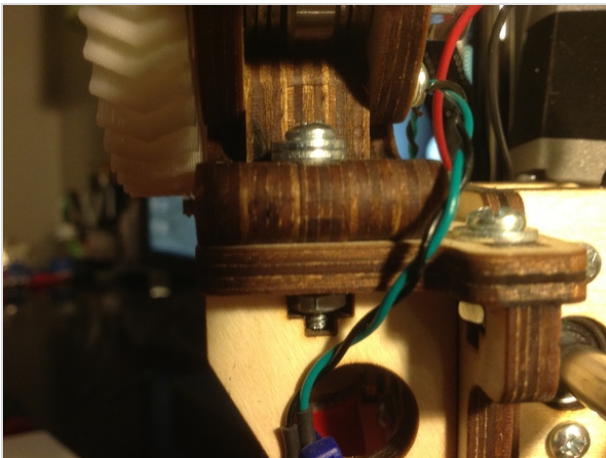
Step 15

- Now now install your last lasercut piece with two locknuts.



Step 16

- In case you were concerned, the first picture shows the hobbed bolt is actually slightly offset from center. This is as designed and will function properly.
- The second and third pictures show what the bolts will look like when properly installed.



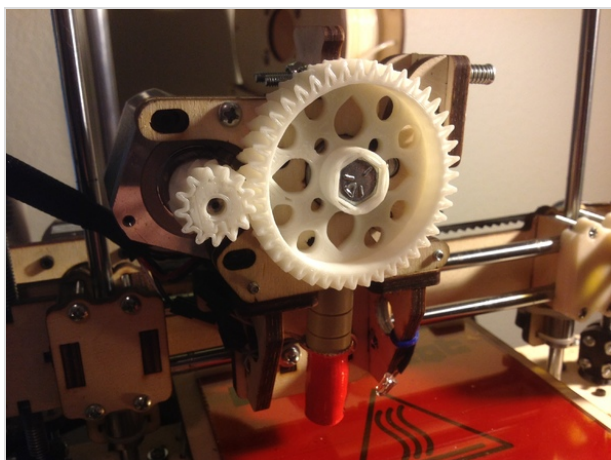
Step 17

- Two washers and a 1" 6x32 screw are needed for proper installation of the extruder on the Printbot LC.



Step 18

- In this picture you can see the half inch screw does extend past the surface but still gives clearance for the stepper motor.



Step 19

- Notes on installing the stepper motor and filament.
- The wooden extruder is more rigid than a plastic one. When installing the stepper motor, not a lot of pressure is needed. Install the screws that hold the stepper motor in place, "very lightly" position the stepper motor. Then tighten the screws down.
- You may find that less tension is needed to clamp down on the filament. If the stepper is having trouble turning, either the stepper motor was installed too tightly or the springs are too tight.
- Enjoy your awesome new extruder!

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